

## SEQUENCE LISTING

<110> Arumugham, Rasappa  
Prasad, A. Krishna

<120> Methods of Producing Immunogenic Peptide Carrier Conjugates

<130> 025721-000110US

<140>

<141>

<150> US 60/530,480

<151> 2003-12-17

<160> 54

<170> PatentIn version 3.3

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<212> PRT

<213> Homo sapiens

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Asp Ala Glu Phe Arg Cys

1 5

<210> 2

<211> 8

<212> PRT

<213> Homo sapiens

<400> 2

Asp Ala Glu Phe Arg His Asp Cys

1 5

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Asp Ala Glu Phe Arg His Asp Ser Gly Cys  
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Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val Cys  
1 5 10

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Asp Ala Glu Phe Arg Gly Ala Gly Ala Cys  
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Asp Ala Glu Phe Arg His Asp Gly Ala Gly Ala Cys

1 5 10

<210> 7  
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<400> 7

Asp Ala Glu Phe Arg His Asp Ser Gly Gly Ala Gly Ala Cys  
1 5 10

<210> 8  
<211> 17  
<212> PRT  
<213> Homo sapiens

<400> 8

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val Gly Ala Gly Ala  
1 5 10 15

Cys

<210> 9  
<211> 13  
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<213> Homo sapiens

<400> 9

Val Glu Tyr Gly Ser Asp His Arg Phe Glu Ala Asp Cys  
1 5 10

<210> 10

<211> 4

<212> PRT

<213> Homo sapiens

<400> 10

Gly Ala Gly Ala

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<213> Homo sapiens

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Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys Leu Ala Thr

1

5

10

<210> 12

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<213> Homo sapiens

<220>

<221> misc\_feature

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<400> 12

Ala Lys Xaa Val Ala Ala Trp Thr Leu Lys Ala Ala Ala

1

5

10

<210> 13

<211> 16

<212> PRT

<213> Homo sapiens

<400> 13

Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn Val  
1 5 10 15

<210> 14

<211> 10

<212> PRT

<213> Homo sapiens

<400> 14

Phe Glu Leu Leu Thr Arg Ile Leu Thr Ile  
1 5 10

<210> 15

<211> 19

<212> PRT

<213> Homo sapiens

<400> 15

Asp Gln Ser Ile Gly Asp Leu Ile Ala Glu Ala Met Asp Lys Val Gly  
1 5 10 15

Asn Glu Gly

<210> 16

<211> 14

<212> PRT

<213> Homo sapiens

<400> 16

Gln Val His Phe Gln Pro Leu Pro Pro Ala Val Val Lys Leu  
1 5 10

<210> 17

<211> 15

<212> PRT

<213> Homo sapiens

<400> 17

Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu  
1 5 10 15

<210> 18

<211> 21

<212> PRT

<213> Homo sapiens

<400> 18

Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser  
1 5 10 15

Ala Ser His Leu Glu  
20

<210> 19

<211> 15

<212> PRT

<213> Homo sapiens

<400> 19

Lys Gln Ile Ile Asn Met Trp Gln Glu Val Gly Lys Ala Met Tyr  
1 5 10 15

<210> 20  
<211> 51  
<212> PRT  
<213> Homo sapiens

<400> 20

Asp Ala Glu Phe Arg His Asp Gln Tyr Ile Lys Ala Asn Ser Lys Phe  
1 5 10 15

Ile Gly Ile Thr Glu Leu Cys Phe Asn Asn Phe Thr Val Ser Phe Trp  
20 25 30

Leu Arg Val Pro Lys Val Ser Ala Ser His Leu Glu Asp Ala Glu Phe  
35 40 45

Arg His Asp  
50

<210> 21  
<211> 42  
<212> PRT  
<213> Homo sapiens

<400> 21

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys  
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile  
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala  
35 40

<210> 22  
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<212> PRT  
<213> Homo sapiens

<400> 22

Asp Ala Glu Phe Arg His Asp Gln Tyr Ile Lys Ala Asn Ser Lys Phe  
1 5 10 15

Ile Gly Ile Thr Glu Leu  
20

<210> 23  
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<213> Homo sapiens

<400> 23

Asp Ala Glu Phe Arg His Asp Phe Asn Asn Phe Thr Val Ser Phe Trp  
1 5 10 15

Leu Arg Val Pro Lys Val Ser Ala Ser His Leu Glu  
20 25

<210> 24  
<211> 43  
<212> PRT  
<213> Homo sapiens

<400> 24

Asp Ala Glu Phe Arg His Asp Gln Tyr Ile Lys Ala Asn Ser Lys Phe  
1 5 10 15



Ile Gly Ile Thr Glu Leu Phe Asn Asn Phe Thr Val Ser Phe Trp Leu  
 20 25 30

Arg Val Pro Lys Val Ser Ala Ser His Leu Glu  
 35 40

<210> 25  
 <211> 22  
 <212> PRT  
 <213> Homo sapiens

<400> 25

Glu Phe Arg His Asp Ser Gly Gln Tyr Ile Lys Ala Asn Ser Lys Phe  
 1 5 10 15

Ile Gly Ile Thr Glu Leu  
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<210> 26  
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 <223> Xaa can be any naturally occurring amino acid

<400> 26

Ala Lys Xaa Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Asp Ala Glu  
 1 5 10 15

Phe Arg His Asp

20

<210> 27

<211> 34

<212> PRT

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (24)..(24)

<223> Xaa can be any naturally occurring amino acid

<400> 27

Asp	Ala	Glu	Phe	Arg	His	Asp	Asp	Ala	Glu	Phe	Arg	His	Asp	Asp	Ala
1				5				10					15		

Glu	Phe	Arg	His	Asp	Ala	Lys	Xaa	Val	Ala	Ala	Trp	Thr	Leu	Lys	Ala
				20				25					30		

Ala Ala

<210> 28

<211> 34

<212> PRT

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (3)..(3)

<223> Xaa can be any naturally occurring amino acid

<400> 28

Ala Lys Xaa Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Asp Ala Glu  
1 5 10 15

Phe Arg His Asp Asp Ala Glu Phe Arg His Asp Asp Ala Glu Phe Arg  
20 25 30

His Asp

<210> 29  
<211> 20  
<212> PRT  
<213> Homo sapiens

<220>  
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<222> (10)..(10)  
<223> Xaa can be any naturally occurring amino acid

<400> 29

Asp Ala Glu Phe Arg His Asp Ala Lys Xaa Val Ala Ala Trp Thr Leu  
1 5 10 15

Lys Ala Ala Ala  
20

<210> 30  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 30

Asp Ala Glu Phe Arg His Asp Ile Ser Gln Ala Val His Ala Ala His  
1 5 10 15

Ala Glu Ile Asn Glu Ala Gly Arg  
20

<210> 31  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 31

Phe Arg His Asp Ser Gly Tyr Ile Ser Gln Ala Val His Ala Ala His  
1 5 10 15

Ala Glu Ile Asn Glu Ala Gly Arg  
20

<210> 32  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 32

Glu Phe Arg His Asp Ser Gly Ile Ser Gln Ala Val His Ala Ala His  
1 5 10 15

Ala Glu Ile Asn Glu Ala Gly Arg  
20

<210> 33  
<211> 34  
<212> PRT

<213> Homo sapiens

<400> 33

Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys Leu Ala Thr Asp Ala Glu  
1 5 10 15

Phe Arg His Asp Asp Ala Glu Phe Arg His Asp Asp Ala Glu Phe Arg  
20 25 30

His Asp

<210> 34

<211> 27

<212> PRT

<213> Homo sapiens

<400> 34

Asp Ala Glu Phe Arg His Asp Pro Lys Tyr Val Lys Gln Asn Thr Leu  
1 5 10 15

Lys Leu Ala Thr Asp Ala Glu Phe Arg His Asp  
20 25

<210> 35

<211> 34

<212> PRT

<213> Homo sapiens

<400> 35

Asp Ala Glu Phe Arg His Asp Asp Ala Glu Phe Arg His Asp Asp Ala  
1 5 10 15

Glu Phe Arg His Asp Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys Leu  
20 25 30

Ala Thr

<210> 36  
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<213> Homo sapiens

<400> 36

Asp Ala Glu Phe Arg His Asp Asp Ala Glu Phe Arg His Asp Pro Lys  
1 5 10 15

Tyr Val Lys Gln Asn Thr Leu Lys Leu Ala Thr  
20 25

<210> 37  
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<400> 37

Asp Ala Glu Phe Arg His Asp Pro Lys Tyr Val Lys Gln Asn Thr Leu  
1 5 10 15

Lys Leu Ala Thr Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser  
20 25 30

Val Phe Asn Val Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile  
35 40 45

Thr Glu Leu Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro  
50 55 60

Lys Val Ser Ala Ser His Leu Glu Asp Ala Glu Phe Arg His Asp  
65 70 75

<210> 38

<211> 58

<212> PRT

<213> Homo sapiens

<400> 38

Asp Ala Glu Phe Arg His Asp Asp Ala Glu Phe Arg His Asp Asp Ala  
1 5 10 15

Glu Phe Arg His Asp Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly  
20 25 30

Ile Thr Glu Leu Cys Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg  
35 40 45

Val Pro Lys Val Ser Ala Ser His Leu Glu  
50 55

<210> 39

<211> 44

<212> PRT

<213> Homo sapiens

<400> 39

Asp Ala Glu Phe Arg His Asp Gln Tyr Ile Lys Ala Asn Ser Lys Phe

1 5 10 15

Ile Gly Ile Thr Glu Leu Cys Phe Asn Asn Phe Thr Val Ser Phe Trp  
20 25 30

Leu Arg Val Pro Lys Val Ser Ala Ser His Leu Glu  
35 40

<210> 40

<211> 535

<212> PRT

<213> Homo sapiens

<400> 40

Gly Ala Asp Asp Val Val Asp Ser Ser Lys Ser Phe Val Met Glu Asn  
1 5 10 15

Phe Ser Ser Tyr His Gly Thr Lys Pro Gly Tyr Val Asp Ser Ile Gln  
20 25 30

Lys Gly Ile Gln Lys Pro Lys Ser Gly Thr Gln Gly Asn Tyr Asp Asp  
35 40 45

Asp Trp Lys Glu Phe Tyr Ser Thr Asp Asn Lys Tyr Asp Ala Ala Gly  
50 55 60

Tyr Ser Val Asp Asn Glu Asn Pro Leu Ser Gly Lys Ala Gly Gly Val  
65 70 75 80

Val Lys Val Thr Tyr Pro Gly Leu Thr Lys Val Leu Ala Leu Lys Val  
85 90 95



Asp Asn Ala Glu Thr Ile Lys Lys Glu Leu Gly Leu Ser Leu Thr Glu  
100 105 110

Pro Leu Met Glu Gln Val Gly Thr Glu Glu Phe Ile Lys Arg Phe Gly  
115 120 125

Asp Gly Ala Ser Arg Val Val Leu Ser Leu Pro Phe Ala Glu Gly Ser  
130 135 140

Ser Ser Val Glu Tyr Ile Asn Asn Trp Glu Gln Ala Lys Ala Leu Ser  
145 150 155 160

Val Glu Leu Glu Ile Asn Phe Glu Thr Arg Gly Lys Arg Gly Gln Asp  
165 170 175

Ala Met Tyr Glu Tyr Met Ala Gln Ala Cys Ala Gly Asn Arg Val Arg  
180 185 190

Arg Ser Val Gly Ser Ser Leu Ser Cys Ile Asn Leu Asp Trp Asp Val  
195 200 205

Ile Arg Asp Lys Thr Lys Thr Lys Ile Glu Ser Leu Lys Glu His Gly  
210 215 220

Pro Ile Lys Asn Lys Met Ser Glu Ser Pro Asn Lys Thr Val Ser Glu  
225 230 235 240

Glu Lys Ala Lys Gln Tyr Leu Glu Glu Phe His Gln Thr Ala Leu Glu  
245 250 255

His Pro Glu Leu Ser Glu Leu Lys Thr Val Thr Gly Thr Asn Pro Val  
260 265 270

Phe Ala Gly Ala Asn Tyr Ala Ala Trp Ala Val Asn Val Ala Gln Val  
275 280 285

Ile Asp Ser Glu Thr Ala Asp Asn Leu Glu Lys Thr Thr Ala Ala Leu  
290 295 300

Ser Ile Leu Pro Gly Ile Gly Ser Val Met Gly Ile Ala Asp Gly Ala  
305 310 315 320

Val His His Asn Thr Glu Glu Ile Val Ala Gln Ser Ile Ala Leu Ser  
325 330 335

Ser Leu Met Val Ala Gln Ala Ile Pro Leu Val Gly Glu Leu Val Asp  
340 345 350

Ile Gly Phe Ala Ala Tyr Asn Phe Val Glu Ser Ile Ile Asn Leu Phe  
355 360 365

Gln Val Val His Asn Ser Tyr Asn Arg Pro Ala Tyr Ser Pro Gly His  
370 375 380

Lys Thr Gln Pro Phe Leu His Asp Gly Tyr Ala Val Ser Trp Asn Thr  
385 390 395 400

Val Glu Asp Ser Ile Ile Arg Thr Gly Phe Gln Gly Glu Ser Gly His  
405 410 415

Asp Ile Lys Ile Thr Ala Glu Asn Thr Pro Leu Pro Ile Ala Gly Val

420

425

430

Leu Leu Pro Thr Ile Pro Gly Lys Leu Asp Val Asn Lys Ser Lys Thr  
435 440 445

His Ile Ser Val Asn Gly Arg Lys Ile Arg Met Arg Cys Arg Ala Ile  
450 455 460

Asp Gly Asp Val Thr Phe Cys Arg Pro Lys Ser Pro Val Tyr Val Gly  
465 470 475 480

Asn Gly Val His Ala Asn Leu His Val Ala Phe His Arg Ser Ser Ser  
485 490 495

Glu Lys Ile His Ser Asn Glu Ile Ser Ser Asp Ser Ile Gly Val Leu  
500 505 510

Gly Tyr Gln Lys Thr Val Asp His Thr Lys Val Asn Ser Lys Leu Ser  
515 520 525

Leu Phe Phe Glu Ile Lys Ser  
530 535

&lt;210&gt; 41

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 41

Ile Ser Gln Ala Val His Ala Ala His Ala Glu Ile Asn Glu Ala Gly  
1 5 10 15

Arg

<210> 42  
<211> 42  
<212> PRT  
<213> Mus musculus

&lt;400&gt; 42

Asp Ala Glu Phe Gly His Asp Ser Gly Phe Glu Val Arg His Gln Lys  
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile  
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala  
35 40

<210> 43  
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<212> PRT  
<213> Artificial

<220>  
<223> A-beta 18-25 + C

&lt;400&gt; 43

Val Phe Phe Ala Glu Asp Val Gly Cys  
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<210> 44  
<211> 9  
<212> PRT

<213> Artificial

<220>

<223> A-beta 17-24 + C

<400> 44

Leu Val Phe Phe Ala Glu Asp Val Cys  
1 5

<210> 45

<211> 9

<212> PRT

<213> Artificial

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<223> A-beta 16-23 + C

<400> 45

Lys Leu Val Phe Phe Ala Glu Asp Cys  
1 5

<210> 46

<211> 9

<212> PRT

<213> Artificial

<220>

<223> A-beta 18-25 + C

<400> 46

Cys Val Phe Phe Ala Glu Asp Val Gly  
1 5

<210> 47

<211> 9

<212> PRT

<213> Artificial

<220>

<223> C + A-beta 18-25

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Cys Leu Val Phe Phe Ala Glu Asp Val  
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<210> 48

<211> 9

<212> PRT

<213> Artificial

<220>

<223> C + A-beta 16-23

<400> 48

Cys Lys Leu Val Phe Phe Ala Glu Asp  
1 5

<210> 49

<211> 8

<212> PRT

<213> Artificial

<220>

<223> A-beta 18-24 + C

<400> 49

Val Phe Phe Ala Glu Asp Val Cys  
1 5

<210> 50

<211> 8  
<212> PRT  
<213> Artificial

<220>  
<223> A-beta 17-23 + C

<400> 50

Leu Val Phe Phe Ala Glu Asp Cys  
1 5

<210> 51  
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Lys Leu Val Phe Phe Ala Glu Cys  
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<221> misc\_feature

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Cys Val Phe Phe Ala Glu Asp Val

1

5

<210> 53

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<213> Artificial

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<223> C + A-beta 17-23

<400> 53

Cys Leu Val Phe Phe Ala Glu Asp

1

5

<210> 54

<211> 8

<212> PRT

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<223> C + A-beta 16-22 + C

<220>

<221> misc\_feature

<222> (1)..(1)

<223> CRM 197 added via N-terminal cysteine

<400> 54



Cys Lys Leu Val Phe Phe Ala Glu  
1 5